

REMARKS/ARGUMENTS:

Applicant would like to thank the Examiner for the careful consideration given the present application as reflected in the Office action of June 19, 2007 and in connection with the telephone discussion between the Examiner and the undersigned that took place on September 14, 2007. The application has been carefully reviewed in light of the Office action and the discussion and amended as necessary to more clearly and particularly describe the subject matter which Applicants regard as the invention.

Objection to the Drawings

The Examiner has objected to the drawings and has required that “the ‘core reinforcement’ of claims 30-33 and the ‘conical’ and angular tapers of the core reinforcement of claims 31-33 must be shown or the feature(s) canceled from the claim(s).” Applicants respectfully submit that the core reinforcement and taper features are already shown in the drawings. Specifically, the core reinforcement feature is shown in FIG. 6 where the portion of the ceramic portion of the working member that is shown in cross-section as lying inwardly of the cutting edges or teeth of the ceramic portion of the working member comprises an example of the core reinforcement of the ceramic portion of the working member. Additionally, the core reinforcement in that case forms an imaginary conical basic shape that may for example increase at an angle of 0.25° to 3° towards the shaft. The conical configuration and the related tapering of the instrument are shown in FIGs. 4 and 5 of the drawings.

Objection to New Matter Added to the Specification

The Examiner has objected to certain of the amendments that were made to the specification in the last Amendment on the basis that the amendments constitute new matter and has required that the content of those certain amendments be canceled. Specifically, in one case, the Examiner alleges that “the amendment to the paragraph beginning at page 3, line 6 ... appears to [have] no basis for the ... discussion that the core reinforcement is not penetrated by grooves or cuts.” To deal with this objection, the paragraph beginning on page 3, line 6, of the specification has been replaced with a paragraph that overcomes the objection by specifically referring to FIGs. 4, 5 and 6 and noting that in FIG. 6, the portion of the ceramic portion of the working member that is shown in cross-section as lying inwardly of the cutting edges or teeth of

the ceramic portion of the working member comprises the core reinforcement of the ceramic portion of the working member. The paragraph further notes that the core reinforcement can be created by reducing the depth of grooves or cuts from the free end of the working member to the opposite area of the working member adjoining the shaft as shown in FIGs. 4 and 5. The core reinforcement in that case forms an imaginary conical basic shape that may for example increase at an angle of 0.25° to 3° towards the shaft. The conical configuration and the related tapering of the instrument are shown in FIGs. 4 and 5.

In a second case, the examiner alleges that the “amendment at page 3, line 14 of the specification defining microhardness has no basis in the originally filed papers.” Applicants respectfully disagree with the Examiner’s allegation. The specification as originally filed, when considered in light of what is obvious to one skilled in the art, clearly supports the amendment beginning at page 3, line 14 of the specification. The concept of microhardness is known in the art as evidenced by US Patent Nos. 5,177,999 and 6,247,356. Both these patents discuss the concept of microhardness, including the manner in which the microhardness of a material can be measured in Vickers and Knoop tests. Several of the patents cited in US Patent Nos. 5,177,999 and 6,247,356 also concern the concept of microhardness.

The Examiner also has objected to the three new paragraphs that were added to page 8 of the specification as containing new matter. However, the paragraphs relating to the presence of a core reinforcement and the concept of microhardness substantially restate what has been added to page 3 of the specification concerning the provision of a core reinforcement and the concept of microhardness and, consequently, do not contain new matter for the same reasons the material added to page 3 does not contain new matter. As far as the paragraph added to page 8 dealing with geometrically created form transitions is concerned, no objection has been made to a similar addition to page 3 of the specification. Therefore, it is not seen that the paragraph added to page 8 in this regard is objectionable. In any event, what is meant by the phrase geometrically created form transitions would be obvious to one having ordinary skill in the art.

Rejections Based on 35 U.S.C. 112, First Paragraph

Claims 30 through 35 stand rejected under the first paragraph of 35 U.S.C. 112 “as failing to comply with the enablement requirement.” In the opinion of the Examiner, in claims 30 through 33 “it is unclear ... what disclosed element is being referred to with the ‘core reinforcement’ limitation.” It is alleged that “[t]he terminology does not appear in the originally

filed detailed description of the drawings.” Applicants respectfully submit that the original disclosure, as it would be understood by one of ordinary skill in the art, provides support for the “core reinforcement” limitation as explained above and as set forth in the additions to the specification that concern the “core reinforcement” concept.

With respect to claims 34 and 35, the Examiner states that he “is at a loss in interpreting the ‘microhardening’ limitation” and that “[t]he term does not appear in the entire data base of U.S. patents and published applications” The Examiner also alleges that “[t]here is no description of ‘microhardening’ in the originally filed specification.” As noted above, the concept of microhardness is taught in the prior art and it would be obvious to one of ordinary skill in the art that the term “microhardening” refers to enhancing the microhardness of an object.

Rejections Based on 35 U.S.C. 112, Second Paragraph

Claims 30 through 33 have been rejected under the second paragraph of 35 U.S.C. 112 with respect to their inclusion of a “core reinforcement” limitation and claims 34 and 35 have been rejected under 35 U.S.C. 112 with respect to their inclusion of the “microhardening” limitation. The rationales for the rejections are essentially the same as the rationales presented with respect to the rejection of the claims under the first paragraph of 35 U.S.C. 112. Consequently, Applicants respectfully submit that claims 30 through 35 are not subject to rejection under the second paragraph of 35 U.S.C. 112 for the same reasons they are not subject to rejection under the first paragraph of 35 U.S.C. 112 as set forth in the previous paragraph.

Rejections Based on Prior Art

Claims 26, 30, 31, 34 through 36 and 42 through 50 have been rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent 05309102A (hereinafter the “’102 patent”). Claim 26, from which all the remaining claims in the application either directly or indirectly depend, has been amended to further distinguish Applicants’ claims from the ‘102 patent. Specifically, claim 26 has been amended to read as follows:

“A rotating instrument comprising a shaft (1) and a working member (2) which is secured to the shaft or can detachably be secured thereto, wherein at least part of the working member (2) is made from a ceramic material, characterized in that at least one cutting edge and/or toothing is provided in the outer surface of the part of the working member (2) that is made from the

ceramic material such that the at least one cutting edge and/or toothing is adapted to perform a cutting function and the part of the working member (2) made from the ceramic material and containing the at least one cutting edge has a surface roughness of 0.5 μm to 6 μm .”

As amended, claim 26, and the claims dependent thereon, require that there be at least one cutting edge and/or toothing provided in the outer surface of the part of the working member that is made from a ceramic material such that the at least one cutting edge and/or toothing is adapted to perform a cutting function. As has been discussed with the Examiner, the ceramic substrate in the ‘102 patent does not have cutting edges and/or toothing provided in the outer surface of the substrate of the ceramic substrate as required by claim 26. Necessarily then, the ceramic substrate of the tool of the ‘102 patent does not have a cutting edge and/or toothing that is adapted to perform a cutting function. It is diamond particles in the coated diamond surface of the ceramic tool of the ‘102 patent that perform the cutting function as distinguished from Applicants’ invention where at least one cutting edge and/ or toothing is provided in the outer surface of the ceramic part of the working member and is adapted to perform a cutting function. The tool of the ‘102 patent includes grooves 3, but these grooves are provided for the circulation of cooling water and are not disclosed to have a cutting function. During the telephone discussion that was had between the Examiner and the undersigned, the discussion focused on a tool with cutting edges formed in the ceramic part of the working member but it will be understood based on the description in the specification that toothing also can be provided in the ceramic part.

With respect to claims 30 and 31, the claims have been further amended to make clear that the core reinforcement is created by reducing the depth of grooves or cuts made to provide the at least one cutting edge and/or toothing. Since the ‘102 patent does not include grooves or cuts made to provide at least one cutting edge and/or toothing, it necessarily follows that the tool of the ‘102 patent would not have a core reinforcement.

In connection with claim 34, which requires that the surface of the ceramic part of the working member be microhardened, the Examiner alleges that “the micron sized abrasive diamond layer of ‘102 is deemed to meet the undefined ‘microhardened’ terminology”. Applicants respectfully disagree. The limitation in claim 34 requires that a structural feature of the ceramic part, i.e., its microhardness, be enhanced. The ‘102 patent does not disclose that the same structural feature of the diamond coating is enhanced. The same observations are

applicable to claim 36.

With respect to claim 45, the claim has been amended to provide that the surface of the ceramic material is ground to make the surface of the ceramic material without pores and smooth so as to distinguish the claim from the situation referred to by the Examiner where grinding or molding is used to form the grooves 3 of the '102 patent.

Claims 27 through 29, 32 and 33 have been rejected under 35 U.S.C. 103(b) as unpatentable over the '102 patent. Claim 27 calls for a specific surface roughness for the ceramic part, claims 28 and 29 call for specific radii for the geometrically created form transitions and claims 32 and 33 call for dimensional limitations for the core reinforcement. The Examiner dismisses all these limitations as mere matters of choice. However, as disclosed in the specification, all these limitations are meaningful and are not mere matters of choice and the Examiner has not produced any prior art that discloses the use of these limitations.

Claims 37-41 have been rejected under 35 U.S.C. 103 (a) as unpatentable over the '102 patent in view of Kumar (US 2002/0028422). The Examiner is of the view that it would have been obvious to one skilled in the art at the time applicant's invention was made to adopt the teaching of Kumar concerning the use of depth marks in the dental instruments of the '102 patent. Because claims 37-41 are either directly or indirectly dependent on claim 26, combining the teachings of the Japanese Patent and the Kumar publication does not render claims 37-41 unpatentable at least for the reason that claim 26 is distinguishable over the '102 patent as discussed above. Additionally, claims 38 and 39 include a limitation concerning the surface roughness of the depth marks that is not taught by either the '102 patent or the Kumar publication.

It is respectfully submitted that the claims pending in the present application are patentable for the reasons set forth above, and the Examiner is respectfully requested to allow the claims and issue a notice of allowance. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 16-0820, our Order No. HOEF.37546.

Respectfully submitted,

PEARNE & GORDON LLP

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1801 East 9th Street
Suite 1200
Cleveland, Ohio 44114-3108
(216) 579-1700

By: /thaddeusazalenski/
Thaddeus A. Zalenski, Reg. No. 22926